

WHAT IS CLAIMED IS:

1. A method of treating a blood product which contains a nucleic acid-containing pathogen to be inactivated, said method comprising
 - a) forming a mixture comprising said blood product, free psoralen, and low molecular weight psoralen photoproducts; and
 - b) contacting said mixture with a hypercrosslinked resin to remove at least substantially all of said free psoralen and said low molecular weight psoralen photoproducts.
2. The method of claim 1 wherein said psoralen comprises an aminopsoralen selected from the group consisting of 4'-primary amino-substituted psoralen and 5'-primary amino-substituted psoralen.
3. The method of claim 1 wherein said blood product comprises plasma.
4. The method of claim 1 wherein said hypercrosslinked resin is not pre-wetted prior to said act of contacting said mixture with said hypercrosslinked resin.
5. The method of claim 1 wherein said hypercrosslinked resin comprises a polyaromatic resin that is capable of adsorbing said free psoralen and said low molecular weight psoralen photoproducts.
6. The method of claim 5 wherein said hypercrosslinked resin comprises a resin formed using styrene monomer.
7. The method of claim 6 wherein said hypercrosslinked resin is formed using styrene and divinylbenzene monomers.
8. The method of claim 7 wherein said psoralen comprises an aminopsoralen selected from the group consisting of 4'-primary amino-substituted psoralen and 5'-primary amino-substituted psoralen.
9. The method of claim 8 wherein said aminopsoralen comprises 4'-(4-amino-2-oxa)butyl-4,5',8-trimethylpsoralen.

10. A method of removing free psoralen from a blood product, said free psoralen having been exposed to light having a wavelength that causes psoralen to covalently bind to a nucleic acid, the method comprising contacting said blood product with a macroreticular adsorbent resin having a network pore structure that is capable of removing said free psoralen; and removing at least substantially all of said free psoralen from said blood product with said macroreticular adsorbent resin.

11. The method of claim 10 wherein said resin is selected from the group consisting of: a polyaromatic resin having a mean surface area of about 1100 m²/gm, a mean pore diameter of about 46Å, and a mesh size of about 20-50µm; a polyaromatic resin having a mean surface area of about 725 m²/gm, a mean pore diameter of about 40Å, and a mesh size of about 20-60µm; and a functionalized polyaromatic resin having a mean surface area of about 800 m²/gm, a mean pore diameter of about 25Å, and a mesh size of about 20-50µm.

12. The method of claim 10 wherein said resin comprises a hypercrosslinked polyaromatic resin.

13. The method of claim 12 wherein said blood product comprises plasma.

14. The method of claim 12 wherein said blood product comprises platelets.

15. The method of claim 14 wherein said blood product further comprises a synthetic medium containing phosphate.

16. The method of claim 12 wherein said resin is not pre-wetted prior to contacting said blood product with said resin.

17. The method of claim 12 wherein said resin comprises a resin formed using styrene monomer.

18. The method of claim 17 wherein said resin comprises a resin formed using styrene and divinylbenzene monomers.

19. The method of claim 12 wherein said psoralen comprises an aminopsoralen selected from the group consisting of 4'-primary amino-substituted psoralen and 5'-primary amino-substituted psoralen.

20. The method of claim 19 wherein said aminopsoralen comprises 4'-(4-amino-2-oxa)butyl-4,5',8-trimethylpsoralen.

21. The method of claim 10 wherein said blood product is selected from the group consisting of plasma and platelets.

22. The method of claim 10 wherein said psoralen comprises an aminopsoralen selected from the group consisting of 4'-primary amino-substituted psoralen and 5'-primary amino-substituted psoralen.

23. The method of claim 10 wherein said psoralen comprises a brominated psoralen.

24. The method of claim 10 wherein said psoralen comprises free psoralen and low molecular weight psoralen photo products, and wherein the act of removing said psoralen comprises removing at least substantially all of said free psoralen and removing at least substantially all of said low molecular weight psoralen photo products.

25. A blood product formed by the method of claim 1.

26. A blood product formed by the method of claim 3.

27. A blood product formed by the method of claim 10.

28. A blood product formed by the method of claim 15.

29. A method of removing free psoralen from a blood product according to claim 10, wherein the blood product has a concentration of said free psoralen of no more than 1 μ M after the blood product contacts the macroreticular adsorbent resin for no more than 10 hours.

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30. A method according to claim 10, wherein said blood product comprises platelets and wherein the blood product has a pH of at least 6.5 after the blood product contacts the macroreticular adsorbent resin for no more than 10 hours.

31. A method according to claim 10, wherein the act of contacting said blood product with said macroreticular adsorbent resin is performed without prewetting said macroreticular adsorbent resin with a wetting solution.

32. A method according to claim 10, wherein the macroreticular adsorbent resin comprises a resin formed using styrene monomer.

33. A method according to claim 10, wherein the macroreticular adsorbent resin comprises a resin formed using styrene and divinylbenzene monomers.

34. A method according to claim 10, wherein said method further comprises agitating the blood product during said contacting and said removing.

35. A method according to claim 34, wherein said blood product and said macroreticular adsorbent resin are within a hemocompatible housing and said agitating comprises shaking said hemocompatible housing.

36. A method according to claim 10, wherein said method further comprises filtering said blood product with a filter to remove said resin from said blood product.

37. A method according to claim 10, wherein said macroreticular adsorbent resin comprises a nonionic resin.

38. A method according to claim 31, wherein said macroreticular adsorbent resin comprises a nonionic resin.

39. A method according to claim 33, wherein said macroreticular adsorbent resin comprises a nonionic resin.

40. A method according to claim 34, wherein said macroreticular adsorbent resin comprises a nonionic resin.

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41. A method according to claim 10, wherein said free psoralen comprises an aminopsoralen selected from the group consisting of 4'-primary amino-substituted psoralen and 5'-primary amino-substituted psoralen.

42. A method according to claim 41, wherein said aminopsoralen comprises 4'-(4-amino-2-oxa)butyl-4,5',8-trimethylpsoralen.

43. A method according to claim 10, wherein said blood product comprises plasma.

44. A method according to claim 10, wherein said blood product comprises platelets.

45. A method according to claim 44, wherein said blood product further comprises a synthetic medium containing phosphate.

46. A method according to claim 10, wherein less than about 1% of an original amount of psoralen added to said blood product before said acts of contacting and removing remains after said acts of contacting said blood product and said hemocompatible macroreticular resin and removing said free psoralen.

47. A method according to claim 10, wherein less than about 9% of an original amount of psoralen added to said blood product before said acts of contacting and removing remains after said acts of contacting said blood product and said hemocompatible macroreticular resin and removing said free psoralen.

48. A method according to claim 10, wherein said hemocompatible macroreticular resin has a surface area between about 725 and 1100 m²/gm.

49. A method according to claim 34 wherein said hemocompatible macroreticular resin has a pore diameter between about 40 and 100Å.

50. A method according to claim 48 wherein said hemocompatible macroreticular resin has a pore diameter between about 40 and 100Å.

51. A method according to claim 10 wherein said hemocompatible macroreticular resin has a mean diameter between about 250 and 850 micron.

52. A method according to claim 48 wherein said hemocompatible macroreticular resin has a mean diameter between about 250 and 850 micron.

53. A method according to claim 49 wherein said hemocompatible macroreticular resin has a mean diameter between about 250 and 850 micron.

54. A method according to claim 50 wherein said hemocompatible macroreticular resin has a mean diameter between about 250 and 850 micron.

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